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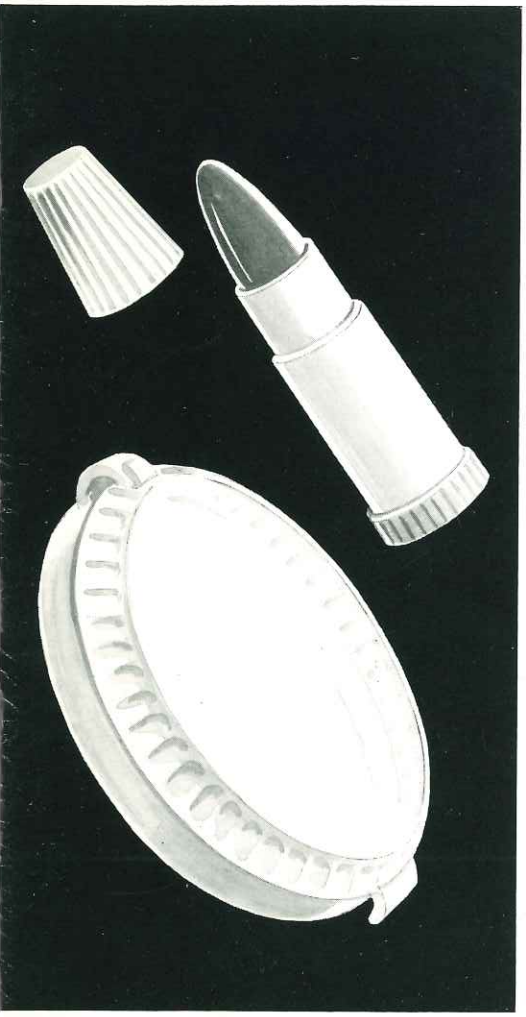
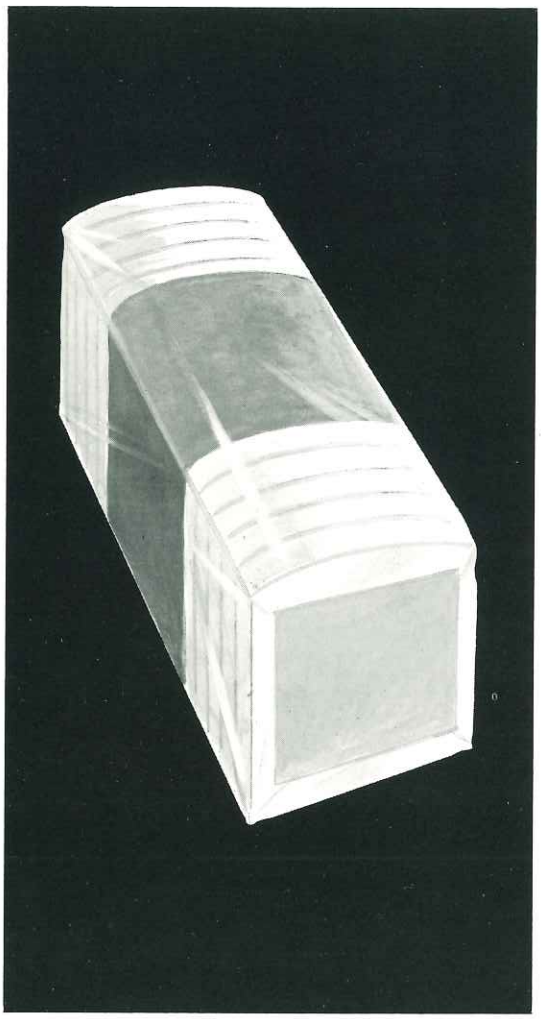




A GUIDE TO PROFITABLE PACKAGING WITH

SHELL Polypropylene

Better-selling packages take shape in

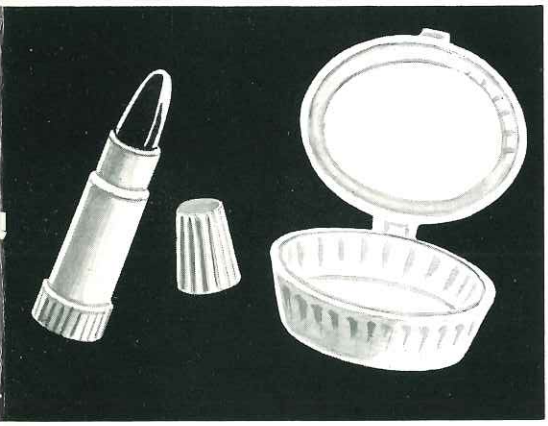
SHELL Polypropylene

CHEMICAL RESISTANT — Containers of Shell Polypropylene resist chemicals, oil and grease — are strong, will not warp at high temperatures.

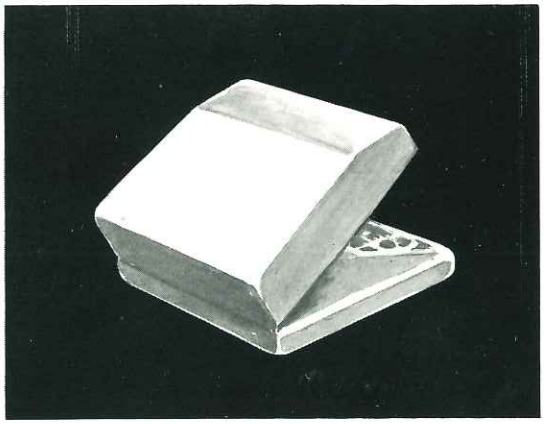
Shell Polypropylene could be just the plastic you need for your package. Polypropylene is the lightest of all plastics (density: 0.91), offers high strength, low cost, and excellent barrier properties. (It gives exceptional yields per pound – up to 31,000 sq. in. of 1 mil gauge film). But why be in doubt when our specialists can advise you and give you detailed information about the complete Shell Polypropylene line?

Shell technical men can help you explore the potential of this new plastic in packaging design – suggest the best polymer for making film, extrusion coatings, vacuum formings, injection and blow moldings. If your application requires a tailor-made polymer, chances are Shell's new polypropylene plant in Woodbury, New Jersey, can make it for you.

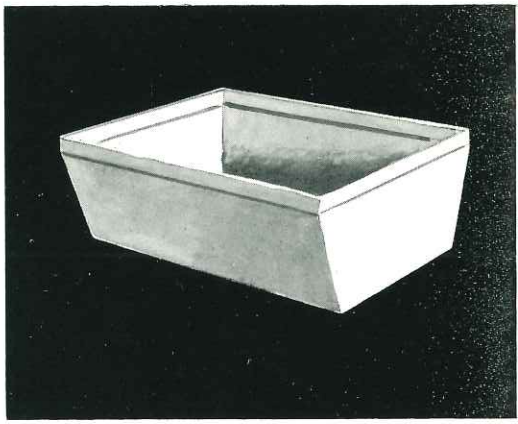
Look over the properties and applications below in terms of *your* package and call Shell today. Our District Offices are listed on the back cover for your convenience.



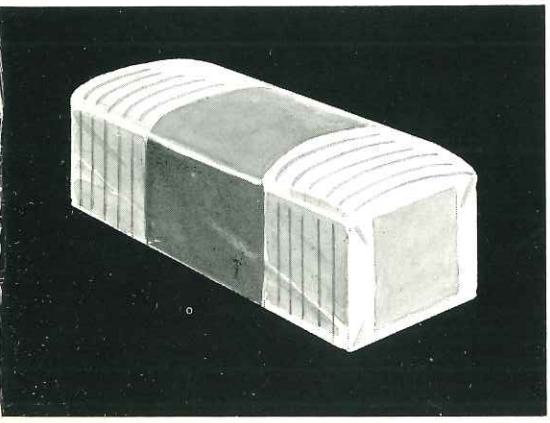
LOW COST — Lipstick cases are inexpensive, colorful, have high surface gloss.



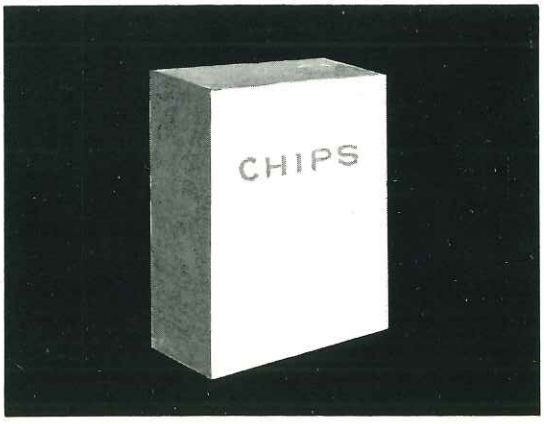
RUGGED — Integral polypropylene hinge on this lightweight typewriter case can withstand millions of flexings.



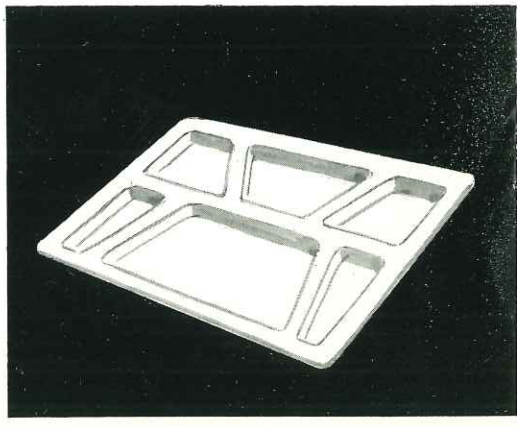
LIGHT WEIGHT — Tote boxes are light, strong enough to hold heavy items — protect contents against impact and abrasion.



CRYSTAL CLEAR — Bread wrappers of polypropylene film offer high strength, clarity, good handling characteristics. They can be readily surface treated for printing.



TEAR RESISTANT — Rugged extrusion coatings of polypropylene have excellent gas barrier properties — protect against dirt and moisture.



HEAT RESISTANT — This vending tray is tough and light, resists autoclaving temperatures.

TYPICAL PROPERTIES OF SHELL POLYPROPYLENES

	TEST METHOD	UNIT	DATA
GENERAL PROPERTIES			
Crystalline Melting Point	Birefringence	°F	330-335
Density (annealed)	—	g/cc	0.91
Mold Shrinkage (to room temperature)	—	per cent	1.2-2.5
MECHANICAL PROPERTIES (at 73°F and 50% Relative Humidity Unless Otherwise Noted)			
Tensile Yield Stress	D638-58T[1]	psi	4800-5200
Elongation at Yield	D638-58T[1]	per cent	12-18
Tensile Modulus	D638-58T[1]	10^5 psi	1.8-2.2
Flexural Modulus	D790-58T[2]	10^5 psi	1.7-1.8
Compressive Yield Stress	D695-54	psi	5500-6500
Izod Impact (notched)	D256-56[3]	ft lb/in of notch	0.8-1.3
Izod Impact (unnotched)	D256-56[3]	ft lb/in unnotched	>30
Izod Impact at 0°F (notched)	D256-56[3]	ft lb/in of notch	0.3
Hardness, Rockwell	D785-51	R	80-90
Hardness, Shore	D1484-57T	D	70-75
Taber Abrasion	—	mg loss/1000 cycles (CS 17 wheel-1000 g load)	20-30
THERMAL PROPERTIES			
Heat Deflection — (at 264 psi fiber stress)	D648-56	°F	135-140
Heat Deflection — (at 66 psi fiber stress)	D648-56	°F	210-220
Coefficient of Linear Thermal Expansion	D696-44	in/in °F	5.8×10^{-5}
Specific Heat at 73°F	—	cal/g	0.45
Coefficient of Thermal Conductivity	—	BTU/ft²/hr/°F/in	1.25
ELECTRICAL PROPERTIES			
Dielectric Constant (10^6 Cycles)	D150-54T	volts/mil	2.3
Dielectric Strength (short time)	D149-55T	volts/mil (⅛" thickness)	600
Volume Resistivity	D257-54T	ohm-cm	10^{17}
Power Factor (10^6 Cycles)	D150-54T	—	0.0003
MISCELLANEOUS PROPERTIES			
Environmental Stress Cracking	Bell Laboratory Method (in 100% Igepal)	—	None
Water Absorption	D570-54T	per cent	0.03

[1] at 2.0"/min crosshead speed; Type I specimen, ⅛" thick
[2] ¼" x ½" specimen, 4" span
[3] ¼" x ½" specimen

Shell can give you expert advice and help you get the most for your packaging dollar

It will pay you to call Shell in the *early* stages of package development. Take advantage of the design and engineering experience of Shell specialists – let them show you how to produce the package you need at low cost. The right advice at the start can save you time and money at every step of design, manufacture and marketing. Remember, Shell offers a complete line of polypropylenes, polystyrenes, and polyethylenes and has a depth of experience that can make a profitable difference for you. Call our nearest District Office today!

The information in this brochure is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe any patent. This information is furnished upon the condition that the person receiving it shall make his own tests to determine the suitability thereof for his particular purpose.

The properties described herein, although current at time of publication, are subject to change due to process improvements. For latest properties, contact our nearest sales office.

February 1963

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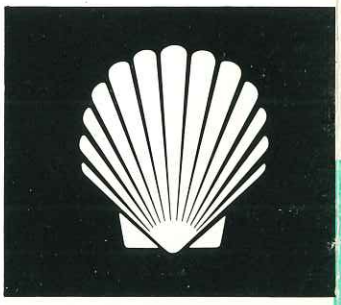
Downey, California
SPruce 3-0601



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